STATE OF CALIFORNIA-CALIFORNIA STATE TRANSPORTATION AGENCY EDMUND G. BROWN Jr., Governor

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October 10, 2014

07-LA-210-R16.1/R25.8
07-2881U4
Project ID 0714000085
ACNHPI-210-1(823)E

Addendum No. 4

Dear Contractor:

This addendum is being issued to the contract for CONSTRUCTION ON STATE HIGHWAY IN LOS ANGELES COUNTY IN LA CANADA FLINTRIDGE, GLENDALE AND PASADENA FROM DUNSMORE AVENUE UNDERCROSSING TO NORTH LOS ROBLES AVENUE OVERCROSSING.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on Thursday, October 16, 2014.

This addendum is being issued to revise the *Notice to Bidders and Special Provisions*.

In the Special Provisions, Section 40-8, "PRECAST JOINTED CONCRETE PAVEMENT," is replaced as attached.

To *Bid* book holders:

Inquiries or questions in regard to this addendum must be communicated as a bidder inquiry and must be made as noted in the *Notice to Bidders* section of the *Notice to Bidders and Special Provisions*.

Submit the *Bid* book as described in the *Electronic Bidding Guide* at the Bidders' Exchange website.

http://www.dot.ca.gov/hq/esc/oe/electronic_bidding/electronic_bidding.html

Inform subcontractors and suppliers as necessary.

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This addendum, EBS addendum file and attachments are available for the Contractors' download on the Web site:

http://www.dot.ca.gov/hq/esc/oe/project_ads_addenda/07/07-2881U4

If you are not a *Bid* book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

for CARRIE BOWEN
District Director

Attachments

Replace section 40-8 of the RSS for section 40 with:

PRECAST JOINTED CONCRETE PAVEMENT

40-8.01 GENERAL

40-8.01A Summary

Section 40-8 includes specifications for furnishing and installing precast jointed concrete pavement (PJCP). Furnishing includes pretensioning PJCP before shipping to the jobsite. Installing includes grading PJCP in place, furnishing and installing dowel bars at joints between PJCP and the existing pavement, and sealing non-compliant joints.

Before submitting shop drawings, field verify the geometry described.

For horizontal curves and transition to horizontal curves, PJCP must match the superelevation and superelevation transition of the roadway.

Install dowel bars at joints between PJCP and the existing concrete in compliance with the requirement in either section 41-8 or "Dowel Bar Slots" of these special provisions.

40-8.01B Definitions

system: consists of features that are part of design, construction, and performance of the precast pavement product. These features are included, but are not limited to size and thickness of panels and slabs, joints, elements cast in the panels, load transfer method, techniques for providing grade control for the panels, etc.

40-8.01C Submittals

40-8.01C(1) General

Section 40-1.01C does not apply.

Section 50-1.01C(3) does not apply.

In addition to the requirements in section 90-4, submit PJCP shop drawings to the Engineer and to Office of Concrete Pavement and Pavement Foundation, MS # 5, 5900 Folsom Boulevard, Sacramento, CA 95819. Submit 4 sets to the Engineer and 1 set to the Office of Concrete Pavement and Pavement Foundation. Allow 15 business days for review.

Shop drawings must include:

1. Details for furnishing PJCP panels including:
   - 1.1. Panel layout and coordinating panel identification system
   - 1.2. Your survey notes for field verification of the existing profile and grade information described
   - 1.3. Your adjusted panel dimensions including calculations for:
     - 1.3.1. Pavement profile with any superelevation or transition
     - 1.3.2. Horizontal curve locations
     - 1.3.3. Allowable fabrication tolerances
     - 1.3.4. Allowable installation tolerances
   - 1.4. Method for casting connection elements within the specified alignment for final placement
   - 1.5. Underslab grout vents locations on the details shown for panels.
   - 1.6. Finishing methods and procedures
   - 1.7. Methods and procedures for handling and transport
2. Details, methods and procedures for installing PJCP panels including:
   - 2.1. Methods and procedures for handling panels
   - 2.2. Methods and procedures for supporting and adjusting grade of the PJCP during installation
   - 2.3. Methods and procedures for installing joint filler, joints, and joint seals
   - 2.4. Details and methods for connecting to the existing pavement
3. Detail method for repairing damaged during removal from the forms or transport and installation
4. Prepared and stamped by a California Licensed Professional Civil Engineer

Submit separate prestressing shop drawings for pretensioning PJCP before shipping to the jobsite. Shop drawings must comply with section 50-1.01C(3) except (1) the 6th and 8th paragraphs do not apply, and (2) do not send them to the OSD.

40-8.01C(2) Alternative System

PJCP specifications and plans are provided as the basic design. You may submit a request to use alternative system. Shop drawing must demonstrate compliance with the following requirements for alternative system:

1. Precast panels with no prestressing must have:
   1.1. One or two layers of reinforcement.
   1.2. Maximum dimension (width or length) equal to or less than 15 feet.
   1.3. Thickness in compliance with the requirements for cast-in-place concrete pavement, unless justification is made to reduce the thickness
2. Load transfer between panels must be provided by dowel bars installed using one of the following methods (dowel bar retrofitting is not acceptable):
   2.1. Underslab slots
   2.2. Narrow slots
   2.3. Side holes for sliding dowels
3. Panels with a width or length greater than 15 feet must be pretensioned in that direction. Panels may be pretensioned in both directions.
4. At locations of superelevation transition for curves with radii smaller than 2000', either:
   4.1. Use proprietary warped or folded panels
   4.2. Use cast-in-place concrete pavement (if allowed by engineer)
5. Drop-in panels must be reinforced or pre-tensioned and at least 8 feet long.
6. Panels must be set to grade using one of the following methods, or any other method that provides acceptable results:
   6.1. Shimming
   6.2. Treated bedding layer (must be used when there is no risk of erosion)
   6.3 Leveling bolts
   6.4. Grading brackets
   6.5. Grading beams
7. When truck lanes are not cast together (monolithic), the panel edge must be supported or the longitudinal joint must have a system to prevent relative vertical displacement of panels. This could be, but is not limited to:
   7.1. Additional reinforcement at the longitudinal edges
   7.2. Key and keyway
   7.3. Dual keyway with shear key
   7.4. Tie bar retrofit
8. Bond breaker must comply with section 36-2.if applicable.
9. You could use synthetic fibers in concrete mix, provided that fibers do not adversely impact panel surface final finishing and grindings.

For alternate system approval, the process consists of two parts. In Part 1, the system designer shall prepare and submit specification, fabrication drawings, and installation procedures. Part 2 of the approval process will consist of construction and evaluation of a trial installation. Final approval and use as an approved system will be given once the specification, fabrication drawings and installation procedures have been completed, the trial panels have been installed in accordance with the approved process and the Department has determined the trial installation is successful.

If you choose to use patented components in the PJCP, you must pay any applicable royalties.

Any new idea or process proposed for use as part of the alternative design which is approved and allowed on the job will become property of the Department and no patent could be filed for that idea or process.

40-8.01D Quality Control and Assurance

40-8.01D(1) General

Section 40-1.01D does not apply.

Test the coefficient of thermal expansion for each mix design.

Provide a QC manager.

Arrange for a prepaving conference facility and hold the conference after submitting the shop drawings, and 10 business days before beginning installation activities including test strip. Discuss methods of performing the installation work.

At the minimum, the meeting must be attended by your:

1. Project superintendent
2. QC manager
3. Installation construction foreman
4. Subcontractor's workers including:
   - 4.1. Fabricator's project manager
   - 4.2. Personnel responsible for saw cutting, underslab grouting and joint sealing

40-8.01D(2) Quality Control Testing

Construct pavement test strips and obtain authorization of your test strips before starting other paving work. Test strips must comply with the authorized shop drawings and be:

1. At least 300 feet long
2. Same width as shown on the authorized shop drawings
3. Same cross-section dimensions as for the highest rate of superelevation as shown on the authorized shop drawings

Notify the Engineer at least 25 working days before you start test strip installation.

Allow 3 business days for test strip review.

Test strip is rejected if:

1. Panels do not comply with alignment criteria
2. Before grouting, there are voids more than 1/4 inch between base and bottom of panel
3. Joint width exceeds its acceptable tolerance
4. Surface varies more than 0.02 foot from a 12-foot straightedge's lower edge
5. Wheel path's individual high points are greater than 0.025 foot in 25 feet
6. Final finishing does not comply with the specifications except coefficient of friction
7. Excess grout flows from under the panel into joints, dowel slots or onto the pavement.

If the test strip complies with the acceptance criteria except for the coefficient of friction, you may grind the test strip under section 42. If the test strip complies with the acceptance criteria after grinding, you may request to leave the test strip in place.

If the test strip does not comply with the panel alignment criteria, submit revised shop drawings that include your proposed changes to correct the alignment. After the revised submittals are authorized, install a new test strip. Repeat this process until the test strip complies with the acceptance criteria.

Remove and dispose of rejected test strips.

Construct additional test strips if you change:

1. Methods and equipment including:
   1.1. Fabrication plants
   1.2. Panel lifting, shipment, and delivery methods
   1.3. Grouting equipment
   1.4. Connections to the existing pavement
2. Base layer preparation method
3. Grout mix for under the slab
4. Panel leveling methods

If you have successfully installed PJCP on a previous Department project and used the same fabrication plant, installation equipment and procedures, and personnel, you may request authorization to start precasting without a test strip. Your request must include supporting documentation from the previous Department project.

40-8.01D(3) Pavement Acceptance

40-8.01D(3)(a) General

Construct PJCP panels to the dimensions shown on the authorized shop drawings. PJCP panels are rejected if the fabricated dimensions are not within the tolerances shown in the following table:

PJCP Panel Fabrication

Dimension	Tolerances
Length (longer dimension)	+/- 1/4 inch
Width (shorter dimension)	+/- 1/8 inch
Nominal thickness	+/- 1/16 inch
Edge alignment straightness measured from a horizontal plane	+/- 1/8 inch
Skew at the ends	+/- 1/8 inch
Batter	+/- 1/16 inch
Position of pre-tensioning strands	+/- 1/8 inch, vertical[a]
	+/- 1/8 inch, horizontal
Diagonal difference of the corner to corner measurement	+/- 1/8 inch
Position of lifting anchors	+/- 3 inches

[a]Measured from the bottom of the panel

The profile and grade of the finished PJCP must match the existing pavement including any superelevation and superelevation transition. PJCP panels are rejected if the installed alignments are not within the tolerances shown in the following table:

PJCP Panel Installation

Alignment	Tolerances
Vertical at transverse joints	+/- 1/4 inch
Vertical at longitudinal joints	+/- 1/4 inch
Horizontal at transverse joints	+/- 1/8 inch
Horizontal at longitudinal joints	+/- 1/4 inch

40-8.02 MATERIALS

40-8.02A General

Proportion grout for under slab grouting under ASTM C938 or use prepackaged grout complying with ASTM C1107. Fine aggregate, if used, must meet grading 2 in ASTM C637. Proportion the ingredients of the grout to meet the following properties:

Quality Characteristic	Test method	Requirement
Strength at 1 hr: @73°F @45°F	ASTM C942	 2500 PSI Min 2000 PSI Min
Strength at 7 days @73°F @45°F	ASTM C942	 7600 PSI Min 6000 PSI Min
Expansion	ASTM C940	0 to 3%
Bleeding at 30 min	ASTM C940	0.1% Max
Eflux Time	ASTM C939	15 to 30 seconds
Grout Bond Strength, bond to dry PCC	CT 551	150 PSI Min in 24 hr
Note: For tests at 45°F condition materials to 45°F for 24 hr before fabrication and store specimens at 45°F until testing		

Polyester concrete must comply with section 41-1.

Tack coat must comply with section 39.

For panels with traffic loop detectors, use glass fiber reinforced polymer (GFRP) in compliance with section 40-1.02C of these special provisions

40-8.02B Prestressing

Prestressing must comply with section 50-1.02.

Transverse pretensioning strand must be either 0.5 or 0.6 inch diameter and comply with ASTM Designation: A 416, Grade 270 (low relaxation).

40-8.02C Expansion Cap

Expansion cap must comply with section 41-8.

40-8.02D Joint Filler

Joint filler material must comply with ASTM D1742 or ASTM D7174, and must be compatible with polyester concrete.

40-8.03 CONSTRUCTION

40-8.03A General

Prestressing must comply with section 50-1.03. The specification for a "member" applies to a PJCP panel.

Where existing pavement is replaced with PJCP, replace only the portion of pavement where the work will be completed during the same lane closure. If installation of the PJCP is not completed during the same lane closure, comply with the specifications for temporary roadway pavement structure in section 41-9.

40-8.03B Furnishing PJCP

If the roadway alignment is on a curve with a radius less than 2, 500 feet, place the reinforcement along a single plane. If the curve does not allow the spacing shown between transverse bar reinforcement and prestress, space them a distance that is between one half the specified spacing and the specified spacing. Before casting, grease the section of dowels extending into the expansion sleeve.

Lifting devises must be recessed at least 1/2 inch below the panel surface and a distance of at least 0.2L from any panel edge.

After casting and before curing, comply with section 40-1.03M.

Section 40-1.03N does not apply. Cure PJCP under section 90-4.

Section 40-1.03O does not apply.

PJCP must have a minimum compressive strength of 4,000 psi prior to the time of releasing the pretensioning strands or moving PJCP panels. Before shipping, PJCP must have a minimum compressive strength of 6,000 psi and must have cured for at least 14 days.

40-8.03C Installing PJCP

40-8.03C(1) General

The existing concrete pavement at transverse or longitudinal joints may be saw cut to a maximum of 3 inches from the joint in order to provide a straight edge for a uniform conform.

Grade the new base or existing base and remove loose and unstable material. If leveling course is used, limit the maximum thickness of the layer to 2".

Before installing PJCP, clean and dry the surface of the base and place the bond breaker on it. The bond breaker must be free of wrinkles and overlapped at least 6 inches in the same direction as the panel installation.

Before installing PJCP panels, attach joint filler across the full length and depth of the transverse and longitudinal joint faces, except at joint keys and keyways. Place the top of the joint filler flush with the top edge of the panel and extend it to the bottom edge of the panel. Secure joint filler to the panel face and prevent it from moving, curling, tearing and other damage. Repair or replace damaged joint filler.

At dowel slots, joint filler installation must comply with caulking and foam inserts requirement.

When truck lanes are not cast together (monolithic), the panel edge must be supported or the longitudinal joint must have a system to prevent relative vertical displacement of panels. Use additional reinforcement at the longitudinal edges, key and keyway, dual keyway with shear key, or tie bar retrofit.

40-8.03C(2) Backfilling

Fill dowel bar slots in the PJCP and existing concrete pavement as soon as possible after panel placement and prior to opening to traffic. Fill dowel bar slots with polyester concrete in accordance with section 41-8, or "Dowel Bar Slots" in these special provisions.

Backfill voids or recessions in the panels related to lifting anchors with polyester concrete.

40-8.03C(3) Grouting

Before grouting, fill dowel bar slots and shear keys with polyester concrete. Consolidate the polyester concrete in place and finish the surface to match the pavement surface. If cracks appear, replace the concrete.

If dowel bar slots and shear keys are unable to be filled prior to opening to traffic, install temporary covers to withstand traffic loading. Fasten the temporary covers to the panels so they are not disturbed or dislodged by traffic and are flush with the surface of the pavement. Do not leave temporary covers at any given location for more than 48 hours. Do not use other filler materials before final filling. Clean slots before filling.

Inject grout under section 41-2.01C and 41-2.03, except do not drill holes, or inject water into holes. Complete underslab grouting prior to opening to traffic.

Backfill any gaps that remain between PJCP and existing AC to remain in place with underslab grout.

40-8.03D Panel Repair

Repair panels damaged during removal from forms and handling in compliance with section 41-4, except polyester concrete must be used. Repairs are required when any surface of the panel is damaged and will affect ride quality, assembly of the panels, or long-term performance of the pavement. Treat the cracks that do not extend to the full depth of a panel with a high molecular weight methacrylate resin in compliance with section 41--3" Crack Treatment".

Seal joints that have a width greater than ¼ inch and less than ¾ inch with preformed compression seals in compliance with section 41-5. For joint widths between ¾" and 1 ½", use the details shown on the plans. Remove and replace the panels when joint width is more than 1 ½".

40-8.04 PAYMENT

Precast jointed concrete pavement is measured based on the dimensions shown.

If the Engineer accepts a test strip for use as roadway, the test strip is paid for as precast jointed concrete pavement.